

Appl. No. 10/770,921

Reply to Office action of May 19, 2005

Amendments to the Claims:

This listing of claims will replace all prior versions and listings in the above-identified application:

1. (Currently Amended) A package structure for a light emitting diode, comprising:

- a conduction board having a first portion and a second portion;
- a conductive layer having an opening;
- an insulation layer, disposed between said conduction board and said conductive layer, for ~~electrically insulating separating~~ said conduction board from said conductive layer and electrically insulating said first portion from said second portion of said conduction board;
- a connection layer, embedded into said insulation layer through said opening, for supporting and electrically connecting said light emitting diode, said connection layer electrically coupling with said first portion of said conduction board and being electrically insulated from at least one portion of said conductive layer; and
- a passage for electrically coupling said at least one portion of said conductive layer with said second portion of said conduction board.

2. (Original) The package structure of claim 1, wherein said insulation layer comprises an isolation layer and an insulation channel, said isolation layer insulates said conduction board from said conductive layer, and said insulation channel insulates said first portion from said second portion of said conduction board.

3. (Original) The package structure of claim 1, comprising a channel for insulating said connection layer from said at least one portion of said conductive layer.

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Claims 4-5 canceled.

6. (Original) The package structure of claim 1, wherein said conduction board is a metal board having material selected from a group consisting of copper, aluminum, and the combination thereof for dissipating heat generated by said light emitting diode, and said metal board has a thickness larger than about 1 mm.

7. (Currently Amended) The package structure of claim 1, wherein said insulation layer comprises an insulating adhesive layer including epoxy or ~~Teflon~~.

8. (Original) The package structure of claim 1, wherein said conductive layer is a copper layer having a thickness in a range of about 0.1 to several mils or above.

9. (Original) The package structure of claim 1, wherein said connection layer has a reflection surface of silver for reflecting lights emitted from said light emitting diode.

10. (Original) The package structure of claim 1, wherein said connection layer has a slanted cup-like reflection surface.

11. (Original) The package structure of claim 1, wherein said connection layer is selected from a group consisting of copper, nickel, silver, gold, and the combination thereof.

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12. (Original) The package structure of claim 1, wherein said passage comprises a hole penetrating through said conductive layer, said insulation layer, and said conduction board, and said hole defines an inner surface coated with a conductive material.

13. (Original) The package structure of claim 12, wherein said conductive material is selected from a group consisting of copper, nickel, silver, gold, and the combination thereof.

Claims 14-19 canceled.

20. (Currently Amended) A light emitting device, comprising:

a light emitting diode having a first electrode and a second electrode;

a substrate sequentially having a conduction board, an insulation layer, and a conductive layer, said conduction board having a first portion and a second portion, said insulation layer for ~~electrically insulating separating~~ said conduction board from said conductive layer and electrically insulating said first portion from said second portion of said conduction board, said conductive layer having an opening;

a connection layer, embedded into said insulation layer ~~from said conductive layer through~~ said opening, for supporting and electrically connecting said light emitting diode, said connection layer electrically coupling with said conduction board and being electrically insulated from at least one portion of said conductive layer; and

a passage for electrically coupling said at least one portion of said conductive layer with said second portion of said conduction board;

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wherein said first electrode of said light emitting diode couples with said connection layer, and said second electrode couples with said at least one portion of said conductive layer.

21. (Original) The light emitting device of claim 20, comprising a channel for insulating said connection layer from said at least one portion of said conductive layer.

Claims 22-23 canceled.

24. (Original) The light emitting device of claim 20, comprising a metal wire for coupling said second electrode of said light emitting diode with said at least one portion of said conductive layer.

25. (Original) The light emitting device of claim 20, wherein said connection layer has a reflection surface of silver for reflecting lights emitted from said light emitting diode.

26. (Original) The light emitting device of claim 25, wherein said connection layer has a slanted cup-like reflection surface.

27. (Original) The light emitting device of claim 20, wherein said connection layer is selected from a group consisting of copper, nickel, silver, gold, and the combination thereof.

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28. (Original) The light emitting device of claim 20, wherein said passage comprises a hole penetrating through said conductive layer, said insulation layer, and said conduction board, and said hole defines an inner surface coated with a conductive material.

Claims 29-35 canceled.